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EXAMINER	
MILLER, MICHAEL G	
ART UNIT	PAPER NUMBER
1762	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/786,349	BUERGEL ET AL.	
	Examiner	Art Unit	
	Michael G. Miller MGM	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1) Claims 17-18 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. In the present case, both these claims depend from claim 15, which already contains the phase requirements (from Claim 14) and the heat treatment temperature requirement (from Claim 15).

Claim Rejections - 35 USC § 102

2) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> i) A person shall be entitled to a patent unless –
>
> ii) (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3) Claims 1-4, 6-7, 9-10, 12-13, 15-16, 18, 21, 24, 27/24 and 30-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Czech et al (European Patent 0525545, hereinafter '545).

4) With regard to Claim 1, '545 teaches a method for recovering texture of a textured article comprising the steps of:

a) First creating on a surface of the article a high temperature stable surface coating (Page 3 Lines 52-55 and Page 5 Lines 17-21); and

b) Second performing a solution heat treatment on said article, thereby maintaining said thermally stable surface coating (Page 5, Lines 17-21, re-diffusion treatment)

c) And keeping a textured microstructure (it would be apparent to one possessing ordinary skill in the art to keep any textured microstructure that was recovered).

5) With specific regard to Claim 2, which includes all the limitations of Claim 1 above, '545 teaches the method according to Claim 1, wherein:

a) Said article is made from a superalloy (Page 2 Lines 1-3).

6) With specific regard to Claim 3, which includes all the limitations of Claim 2 above, '545 teaches the method according to Claim 2, wherein:

a) Said superalloy is nickel-based (Page 2 Lines 11-17).

7) With specific regard to Claim 4, which includes all the limitations of Claim 2 above, '545 teaches: The method according to Claim 2, wherein:

a) Said superalloy is cobalt-based (Page 2 Lines 11-17).

8) With specific regard to Claim 6, which includes all the limitations of Claim 2 above, '545 teaches the method according to Claim 2, wherein:

a) Said solution heat treatment is performed with a temperature above 1100°C (Page 5 Lines 17-21).

9) With specific regard to Claim 7, which includes all the limitations of Claim 2 above, '545 teaches the method according to Claim 2, wherein:

   a) Said solution heat treatment is performed with a temperature above 1150°C (Page 5 Lines 17-21).

10) With specific regard to Claim 9, which includes all the limitations of Claim 1 above, '545 teaches the method according to Claim 1, wherein:

   a) Said article is a gas turbine blade (Page 2 Lines 1-3).

11) With specific regard to Claim 10, which includes all the limitations of Claim 1 above, '545 teaches the method according to Claim 1, wherein:

   a) Said surface coating is an aluminide coating (Page 3 Lines 10-13).

12) With specific regard to Claim 12, which includes all the limitations of Claim 10 above, '545 teaches the method according to Claim 10, wherein:

   a) Said aluminide coating is provided by a chemical vapor deposition process (Page 4 Lines 1-3 and 49-51, "gas phase aluminizing").

13) With regard to Claim 13, '545 teaches a method for refurbishing a gas turbine blade made from a textured superalloy body coated with a protective coating (Page 2 Lines 22-24 and Lines 35-37), the method comprising the steps of:

   a) Coating a surface of said body with a high temperature stable surface coating, thereby covering said protective coating (Page 3 Lines 52-55 and Page 5 Lines 17-21);

   b) Performing a solution heat treatment on the body, thereby maintaining said thermally stable surface coating (Page 5, Lines 17-21, re-diffusion treatment);

c) Removing jointly said surface coating and said protective coating (Page 7 Lines 37-54; the remnants of the protective coating, being inside the aluminide layer, will be removed along with the aluminide layer); and

d) Providing a second protective coating on said body (Page 7 Lines 55-57).

14) Claims 15 and 18 are rejected on the same grounds as Claim 6.

15) With regard to Claim 16, '545 teaches a method for refurbishing a gas turbine blade made from a textured superalloy body coated with a protective coating, the method comprising the steps of:

a) Removing the protective coating (Page 3 Lines 29-34);

b) Coating a surface of said body with a high temperature stable surface coating (Page 3 Lines 52-55 and Page 5 Lines 17-21);

c) Performing a solution heat treatment on said body, thereby maintaining said thermally stable surface coating (Page 5, Lines 17-21, re-diffusion treatment);

d) Removing the surface coating (Page 7 Lines 37-54); and

e) Providing a second protective coating on said body (Page 7 Lines 55-57).

16) With specific regard to Claim 21, which includes all the limitations of Claim 1 above, '545 teaches the method according to Claim 1, wherein:

a) Said surface is applied with an appropriate surface coating (Page 3 Lines 10-13; aluminide is taught to be an appropriate refurbishing surface coating).

17) With specific regard to Claim 24 which includes all the limitations of Claim 21 above, '545 teaches the method according to Claim 1, wherein:

a) A metallic surface layer, in particular of nickel or cobalt is used (Page 3 Lines 10-13; aluminide, while not required to be composed of nickel or cobalt, will form a metallic surface layer).

18) With specific regard to Claim 27/24, '545 teaches the method according to Claim 24, wherein:

a) The surface layer is removed by means of an acid treatment (Page 5 Lines 37-41).

19) Claim 30 is rejected on the same grounds as Claim 1, as the further limitation wherein the protective coating will suppress the grain recrystallization properties is inherent to this process.

20) Claims 31 and 32 are rejected on the same grounds as Claim 2, as '545 talks about repairing gas turbine parts (Claim 31), specifically blades (Claim 32), at Page 2 Lines 1-3.

21) Claims 1 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Schaefer et al (U.S. Patent 6,500,283, hereinafter '283).

22) With regard to Claim 1, '283 teaches a method for recovering texture of a textured article comprising the steps of:

a) First creating on a surface of the article a high temperature stable surface coating (Column 3 Lines 25-47); and

b) Second performing a solution heat treatment on said article, thereby maintaining said thermally stable surface coating (Column 3 Lines 25-47)

c) And keeping a textured microstructure (removal of the sulfur allows for cleaner recrystallization of the remaining metals, allowing for enhancement of any microstructure present at the time).

23) With specific regard to Claim 11, which includes all the limitations of Claim 1 above, '283 teaches the method according to Claim 1, wherein:

a) Said surface coating is an oxide film or scale generated by oxidation of the surface (Column 3 Lines 25-47; the oxide in the metal powder reacts with sulfur on the surface of the substrate to form an oxysulfide scale).

Claim Rejections - 35 USC § 103

24) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

25) The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

a) Determining the scope and contents of the prior art.
b) Ascertaining the differences between the prior art and the Claims at issue.
c) Resolving the level of ordinary skill in the pertinent art.
d) Considering objective evidence present in the application indicating obviousness or nonobviousness.

26) This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

27) Claims 5, 14, 17, 19-20 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over '545 as applied to Claim 3 above, and further in view of '283.

a) With specific regard to Claim 5, which includes all the limitations of Claim 3 above, '545 teaches the method according to Claim 3, except for the following limitation:

i) A γ -phase and a γ '-phase are present in said superalloy and the temperature of said solution heat treatment is at least the solution temperature of the γ'-phase.

b) '283 discusses superalloys suitable for use in gas turbine components. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have applied the method of '545 to gas turbine components formed as discussed in '283 since '545 wants to refurbish gas turbine parts and '283 teaches methods and materials that are suitable for that use.

c) '283 further teaches that superalloy solution heat treatments, when applied to either single crystal or directionally solidified alloy articles, are performed at the solution temperature of the superalloy, and further that this solution temperature is below the solidus temperature of the superalloy.

d) This teaching maps the solution temperature to the gamma prime temperature and the solidus temperature to the gamma temperature, meeting the limitation above (since if a γ -temperature and a γ '-temperature are present, it follows that the phases are also present; further, if the solution temperature was not at least the γ '-temperature, diffusion would not be possible).

28) Claims 14 and 17 are rejected on the same grounds as Claim 5, the only difference being that Claims 14 and 17 depend from Claims 13 and 16 respectively and not from Claim 3.

29) Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over '545 as applied to Claims 1, 13 and 16 above, and further in view of '283.

a) With specific regard to Claim 19, which multiply and distinctly includes all the limitations of Claims 1, 13 and 16 above, '545 teaches the method according to Claim 1, 13 or 16, except for the following limitation:

i) The textured article is a single crystal article.

b) '283 teaches that is known to form gas turbine components from single crystal structures (Column 1 Lines 15 – 33; the reason for the oxide scale film in this art is that the gas turbine components, even after being made from single crystal advanced superalloys, are still inadequate for the task).

c) Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have applied the method of '545 to a single crystal article as described in '283 because '545 wants to treat textured gas turbine components and '283 teaches that single crystal textured gas turbine components are known in the art.

d) This rejection encompasses Claim 19 as it depends from Claim 1, Claim 19 as it depends from Claim 13, and Claim 19 as it depends from Claim 16.

30) Claim 20 is rejected on the same grounds, in the same dependencies, as Claim 19, with the substitution of 'directionally solidified' for 'single crystal' as '283 talks about both classes of material (Column 1 Lines 15-33).

31) Claim 28 is rejected on the same grounds as Claim 14, as the further limitation wherein the protective coating will suppress the grain recrystallization properties is inherent to this process.

32) Claim 29 is rejected on the same grounds as Claim 17, as the further limitation wherein the protective coating will suppress the grain recrystallization properties is inherent to this process.

33) Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over '545 as applied to Claim 2 above.

a) With specific regard to Claim 8, which includes all the limitations of Claim 2 above, '545 teaches the method according to Claim 2, except for the following limitation:

i) Said solution heat treatment is performed with a temperature above 1200°C.

b) '545 does teach that the heat treatment is performed in the temperature range of 1050 – 1200°C.

c) A *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985)

34) Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over '545 as applied to Claim 1 above, and further in view of Saltzman et al (U.S. Patent 4,878,953, hereinafter '953).

a) With specific regard to Claim 22, which includes all the limitations of Claim 1 above, '545 teaches the method according to Claim 1, except for the following limitation:

i) The surface layer is applied to a region which has been newly built up, in particular has been produced by build-up welding.

b) '953 teaches a method of building up an area of a gas turbine using welding techniques to repair certain defects (Column 3 Line 61 – Column 7 Line 3). '953 also teaches that its method of refurbishing is particularly useful in treating nickel-base superalloys with a gamma prime phase – a same class of material as taught in '545.

c) Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have combined the methods of '545 and

'953 because '545 strives to remove inclusions and '953 is capable of repairing defects including inclusions (Column 3 Lines 62 – 66 specifically).

d) Claim 23 is rejected on the same grounds as Claim 22, as the citation in Claim 22 also covers repairing cracks (Column 3 Lines 62 – 66).

35) Claims 25 and 27/25 are rejected under 35 U.S.C. 103(a) as being unpatentable over '545 as applied to Claim 1 above, and further in view of Olson et al (U.S. Patent 4,933,239, hereinafter '239).

a) With specific regard to Claim 25, which includes all the limitations of Claim 1 above, '545 teaches the method according to Claim 24, except for the following limitation:

i) The metallic layer is applied by electroplating.

b) '239 teaches that it is known to deposit aluminides via electroplating (Column 7 Lines 1-22).

c) Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified the method of '545 by electroplating the aluminide compound onto the substrate as taught in '239 because '545 wants an aluminide coating and '239 teaches that electroplating is a known method to obtain such.

d) With specific regard to Claim 27/25, '545/'239 teaches the method according to Claim 25, wherein:

i) The surface layer is removed by means of an acid treatment ('545 Page 5 Lines 37-41).

36) Claims 26 and 27/26 are rejected under 35 U.S.C. 103(a) as being unpatentable over '545 as applied to Claim 1 above, and further in view of Kashirin et al (U.S. PGPub 2003/0091755, hereinafter '755).

a) With specific regard to Claim 26, which includes all the limitations of Claim 24 above, '545 teaches the method according to Claim 24, except for the following limitation:

i) The surface layer is applied by cold gas spraying.

b) '755 teaches application of metallic surface layers to substrates (PG 0011 – 0031, TABLE which shows several composition of greater than 2% Al).

c) Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have applied the aluminide layer called for in '545 by the cold gas spraying method of '755, since '545 wants a method of aluminide deposition and '755 teaches a known method of doing such.

d) With specific regard to Claim 27/26, '545/'755 teaches the method according to Claim 26, wherein:

i) The surface layer is removed by means of an acid treatment ('545 Page 5 Lines 37-41).

37) Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over '545 as applied to Claim 30 above, and further in view of Haydon et al (European Patent 0186797, hereinafter '797).

a) With specific regard to Claim 33, which includes all the limitations of Claim 30 above, '545 teaches the method according to Claim 30, except for the following limitation:

   i) Said superalloy is cobalt-based with precipitations or carbides that provide a strengthening mechanism similar to a γ-phase in Nickel based alloys.

b) '797 teaches a cobalt-based alloy with carbon and monocarbide-forming material inclusions added for the purpose of providing enhanced strengthening mechanisms to the alloy (Page 2 Line 22 – Page 3 Line 36).

c) Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have performed the method of '545 on gas turbines formed by the material of '797 because '545 wants to refurbish gas turbine components and '797 teaches a material that is known for use in gas turbine components.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael G. Miller whose telephone number is (571) 270-1861. The examiner can normally be reached on M-F 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on (571) 272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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